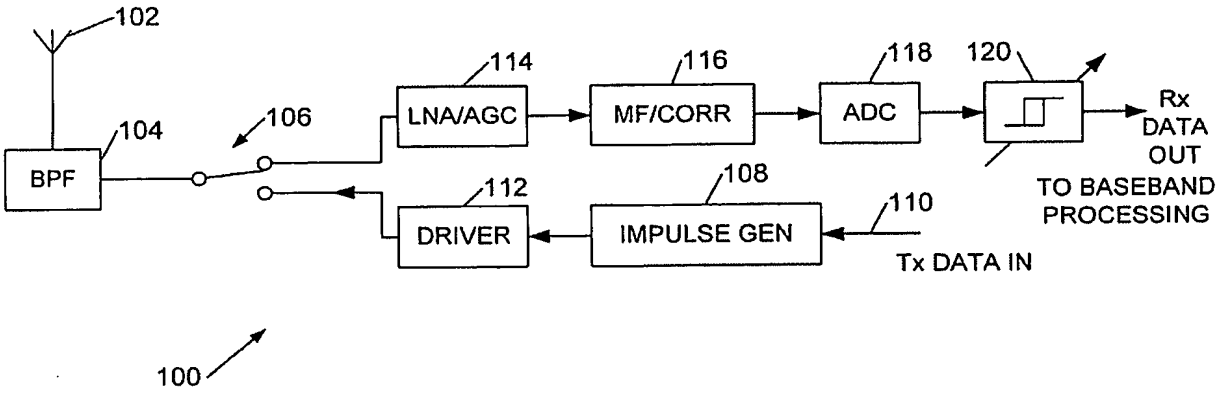

Figure 1a

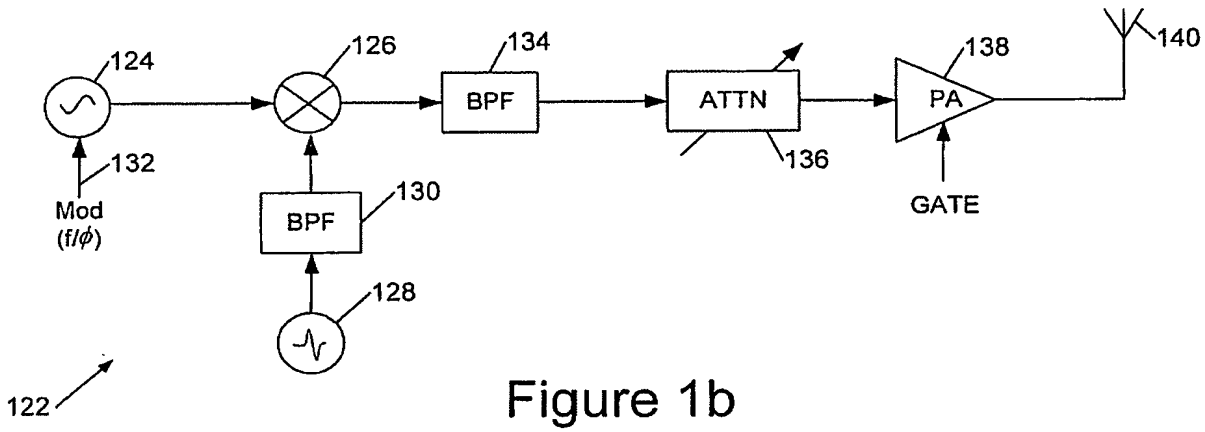

Figure 1b

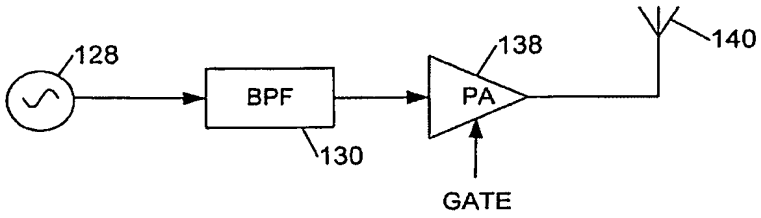

Figure 1c

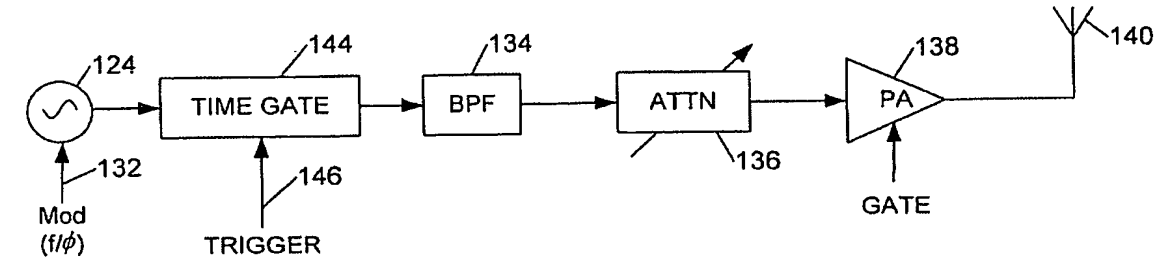

Figure 1d

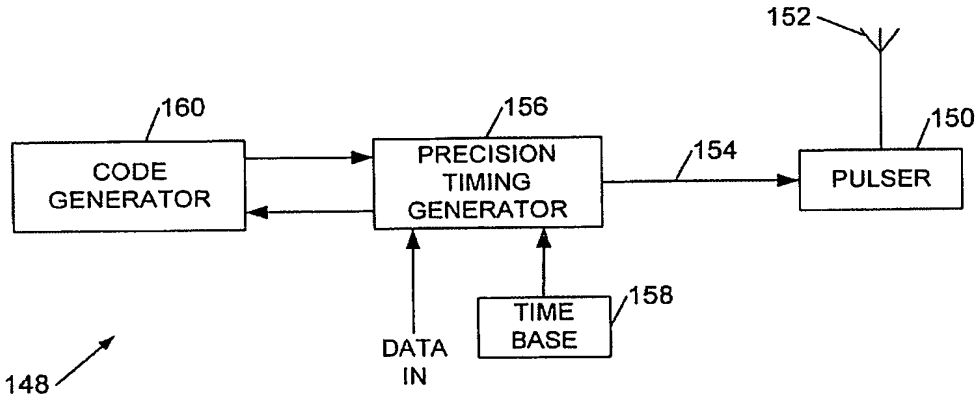

Figure 1e

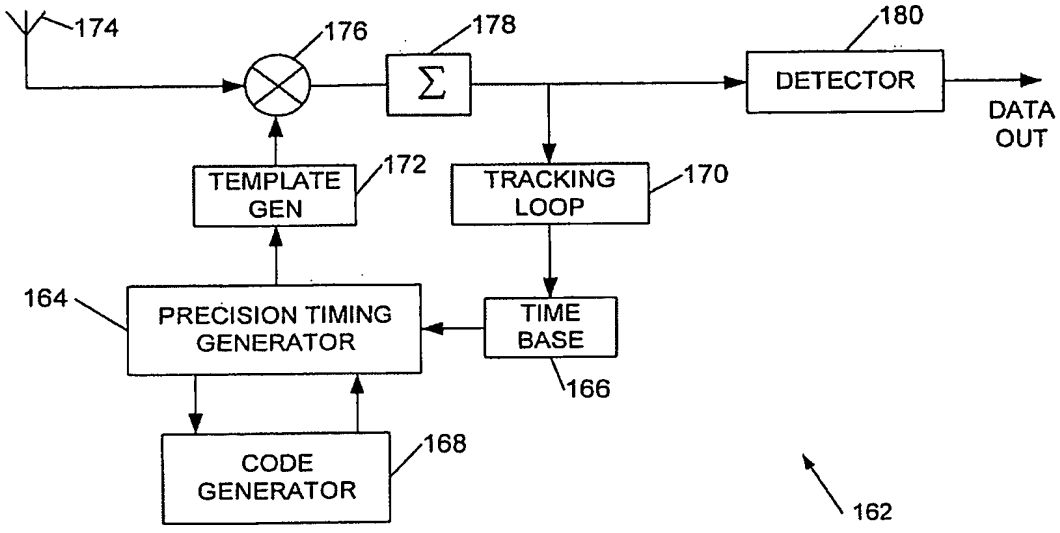

Figure 1f

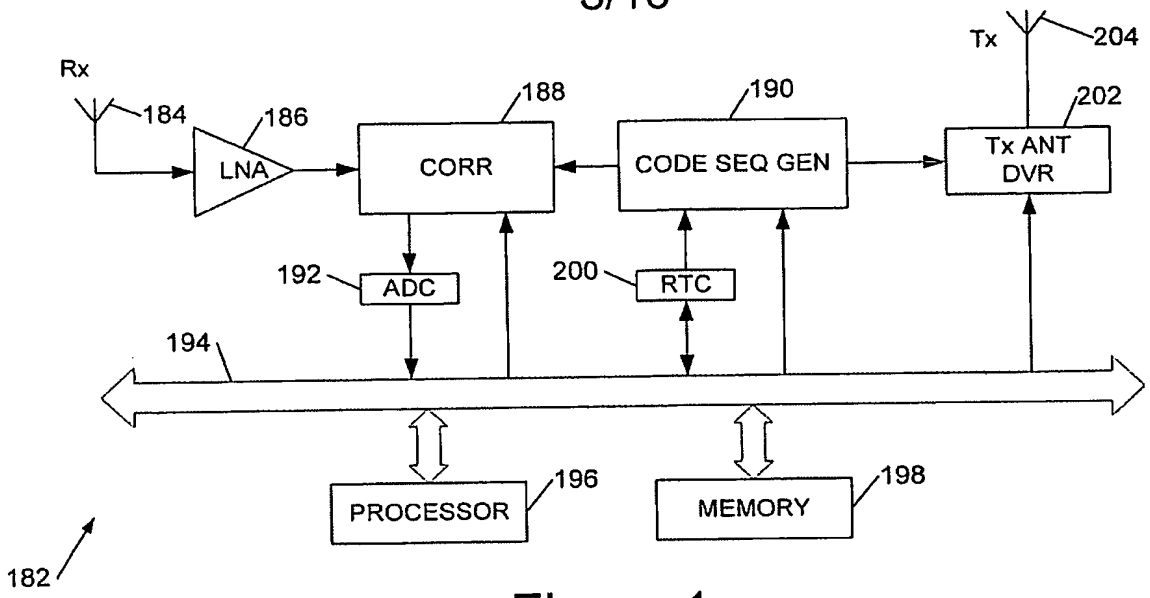

Figure 1g

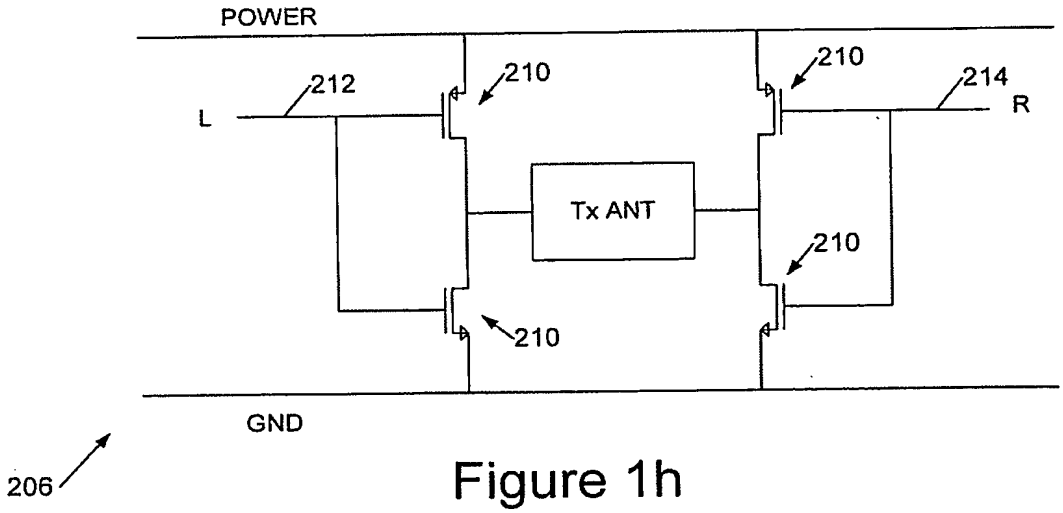

Figure 1h

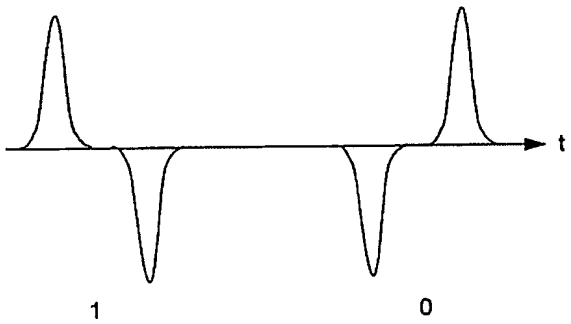

Figure 2g

Figure 2h

Figure 2a

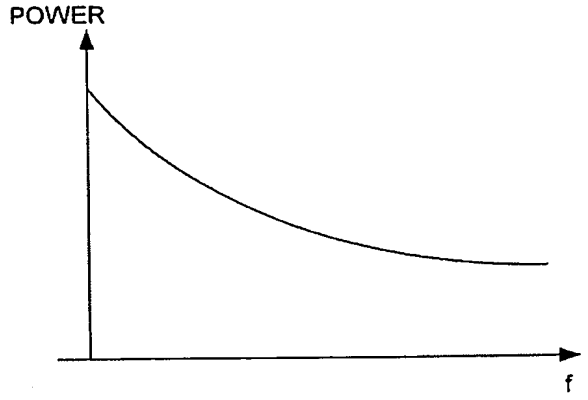

Figure 2b

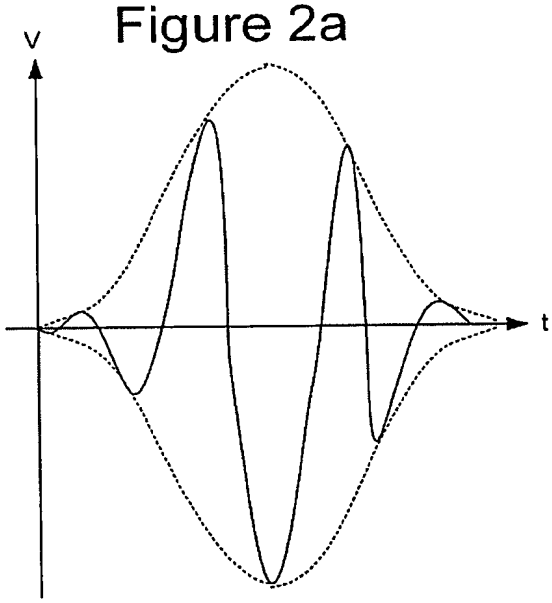

Figure 2c

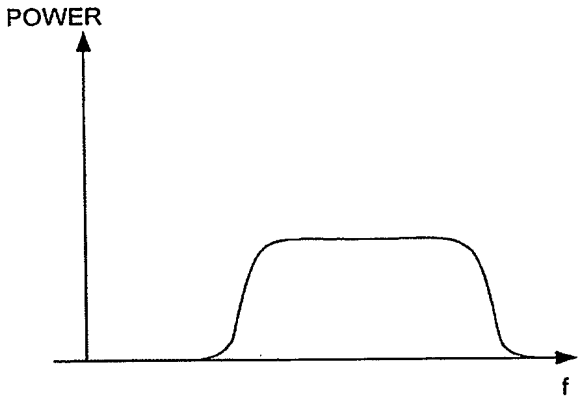

Figure 2d

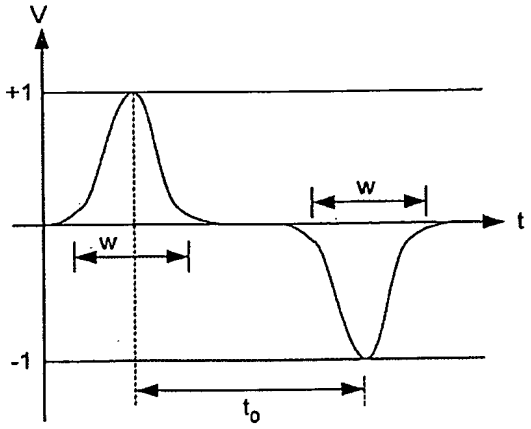

Figure 2e

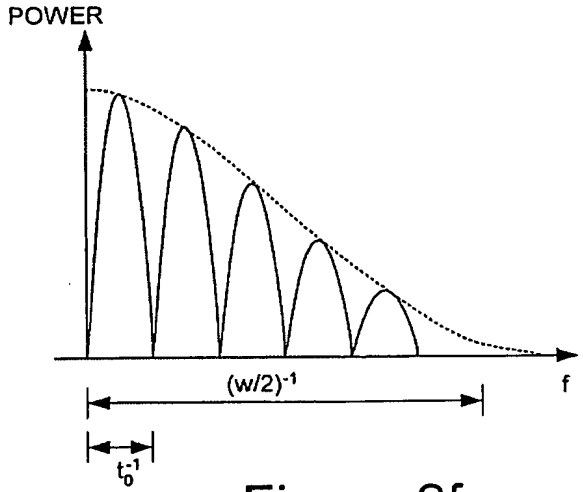

Figure 2f

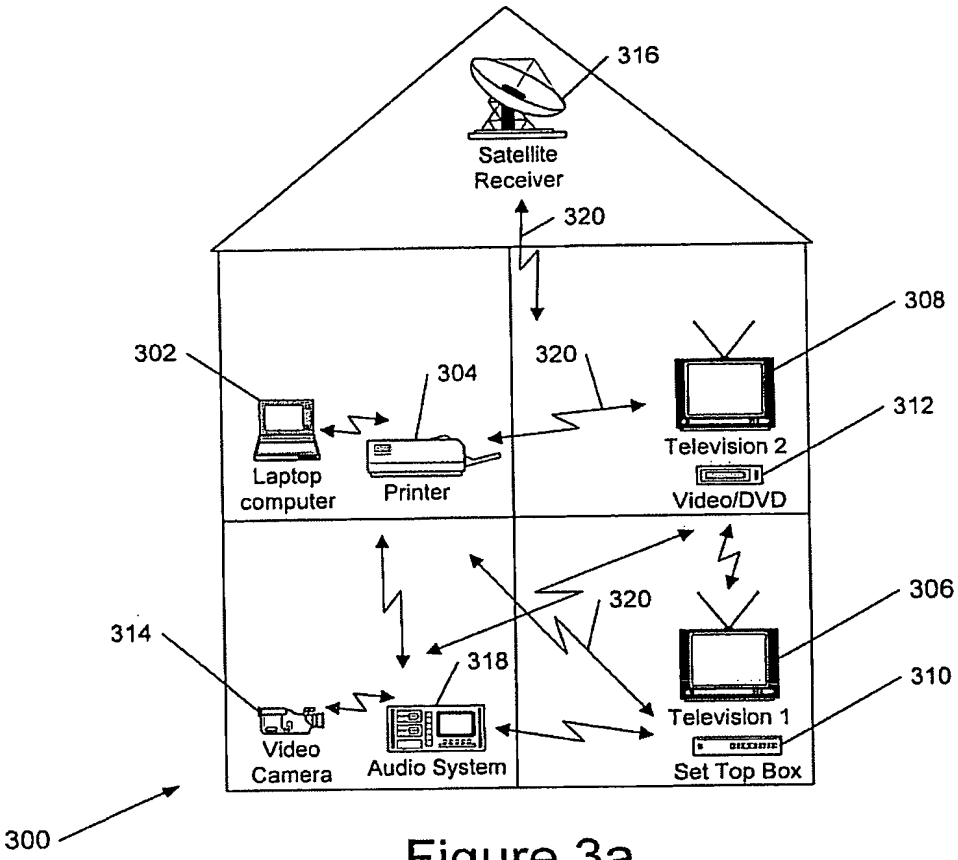

Figure 3a

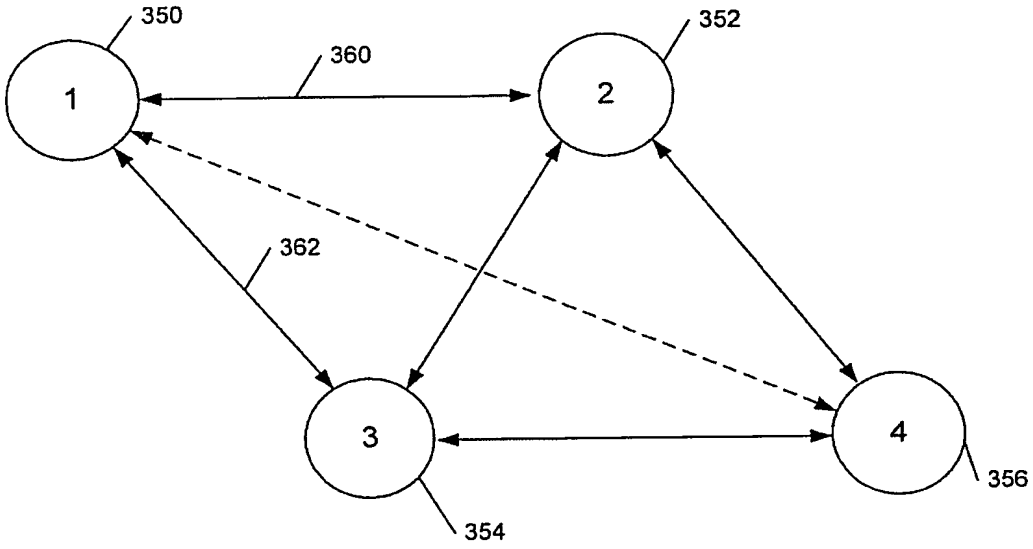

Figure 3b

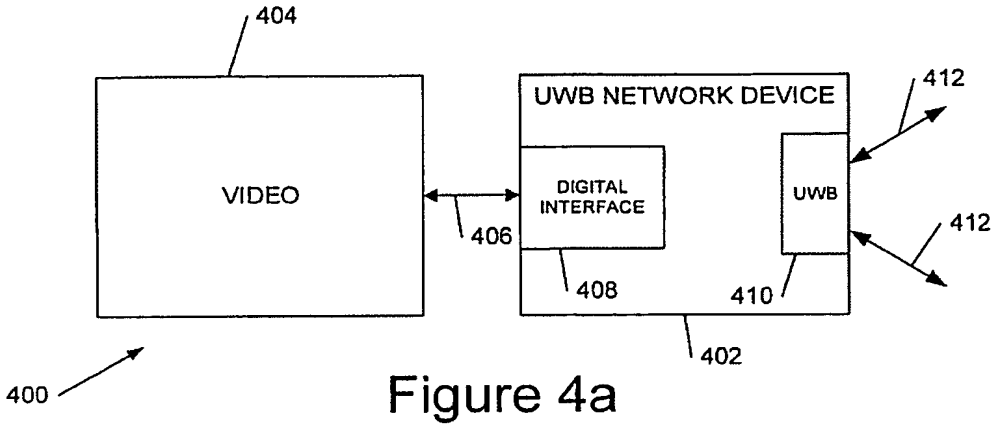

Figure 4a

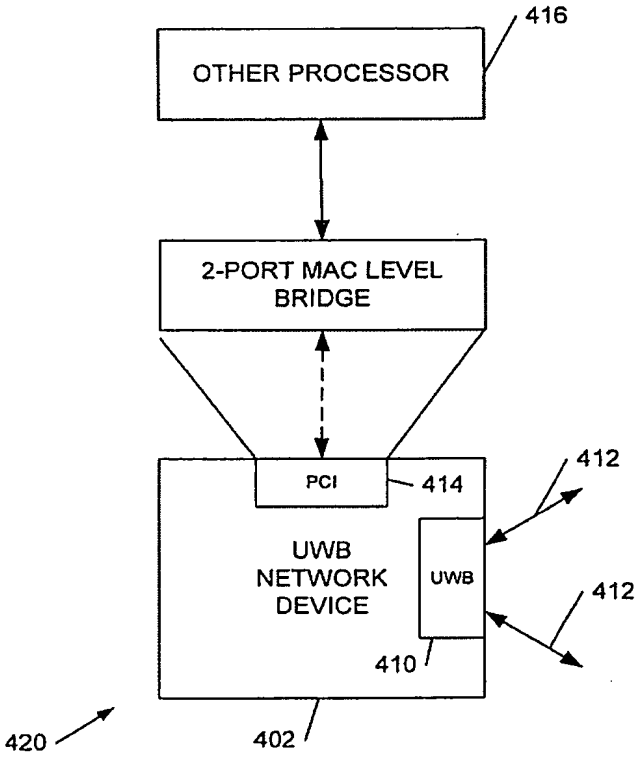

Figure 4b

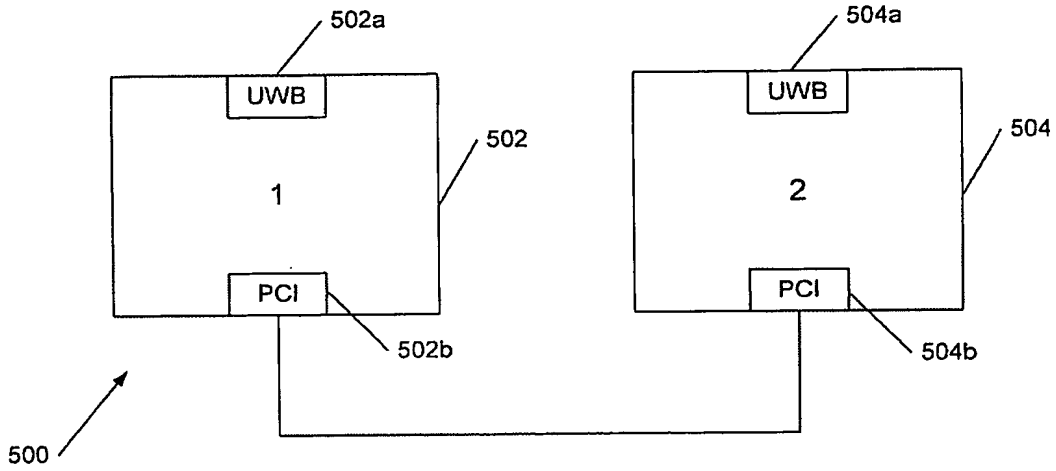

Figure 5a

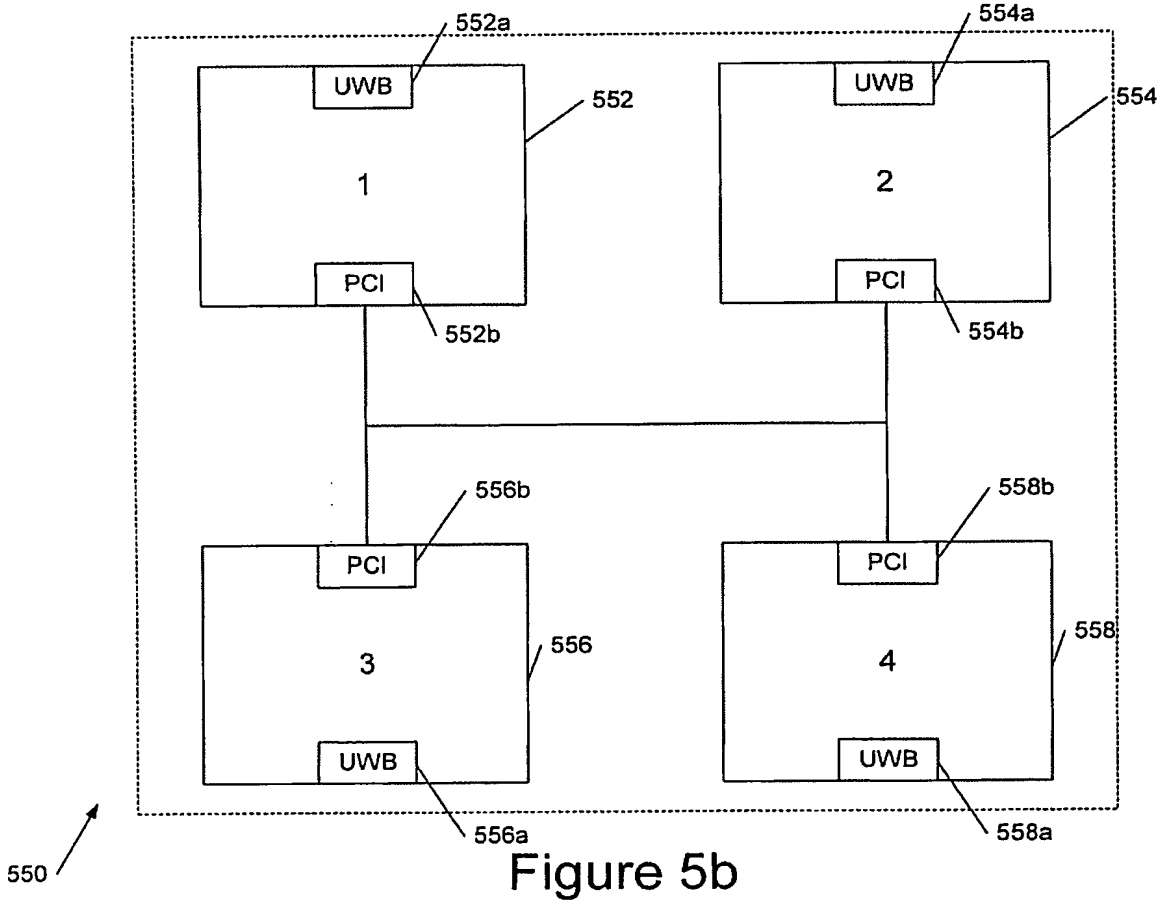

Figure 5b

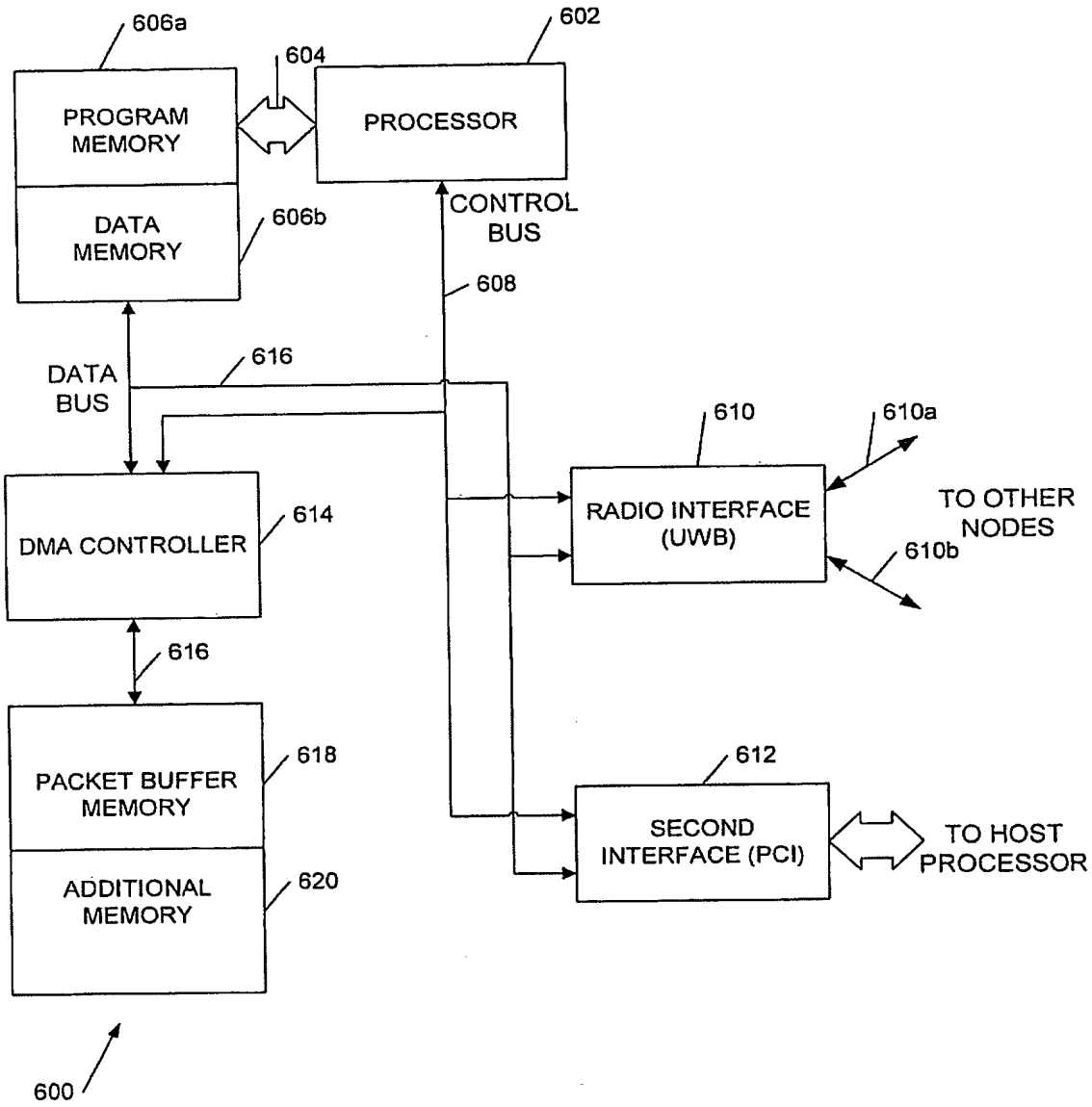
606a
604
602
PROGRAM MEMORY
PROCESSOR
DATA MEMORY
606b
CONTROL BUS
608
DATA BUS
616
610
610a
RADIO INTERFACE (UWB)
TO OTHER NODES
610b
DMA CONTROLLER
614
616
PACKET BUFFER MEMORY
618
612
SECOND INTERFACE (PCI)
TO HOST PROCESSOR
ADDITIONAL MEMORY
620
600

Figure 6

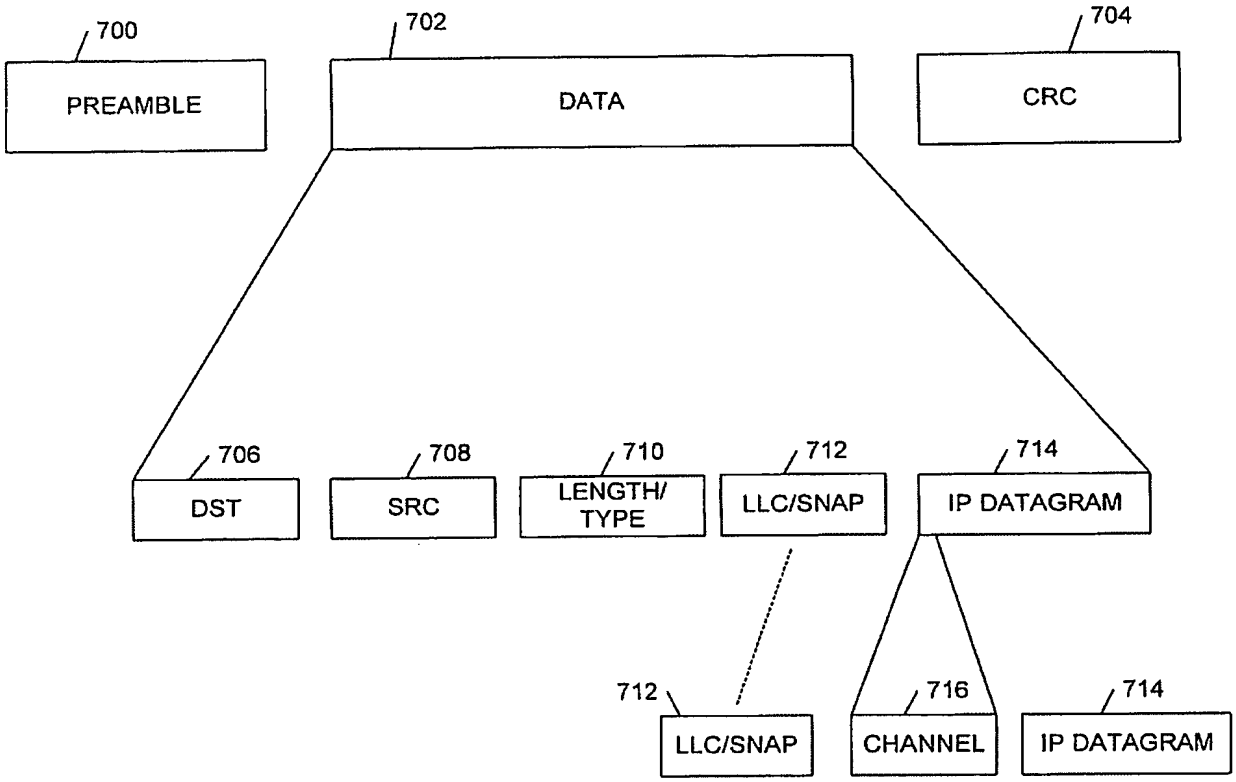

Figure 7a

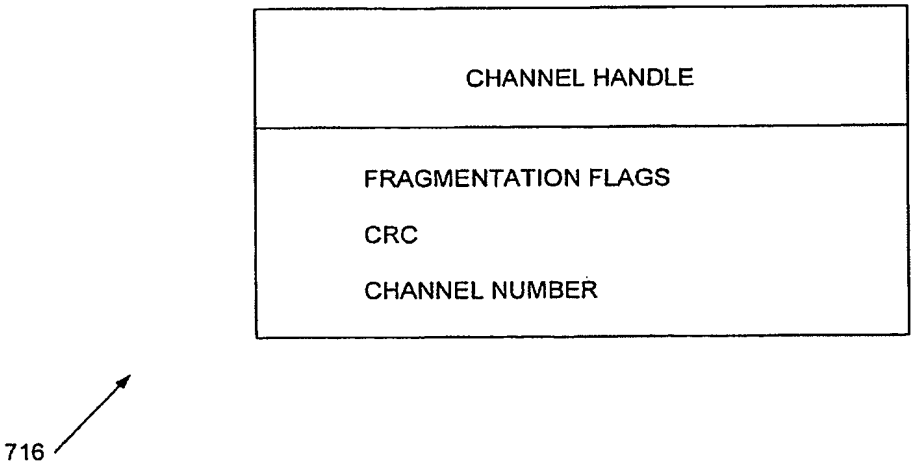

Figure 7b

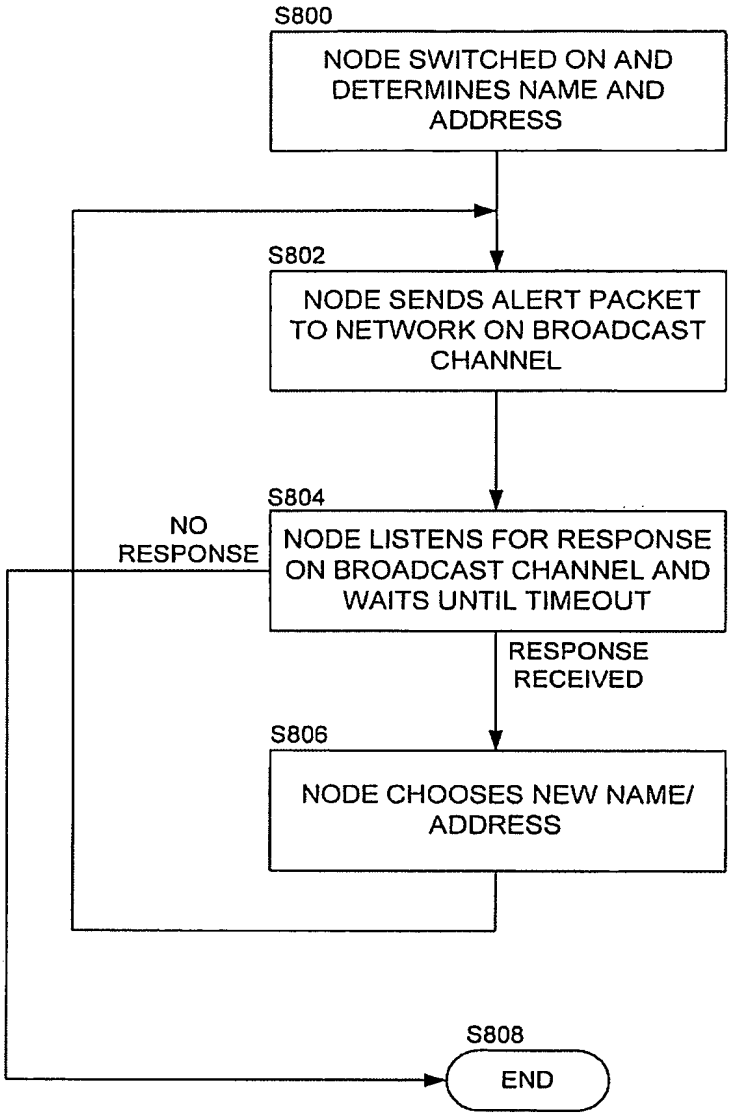
S800
NODE SWITCHED ON AND DETERMINES NAME AND ADDRESS
S802
NODE SENDS ALERT PACKET TO NETWORK ON BROADCAST CHANNEL
S804
NO RESPONSE
NODE LISTENS FOR RESPONSE ON BROADCAST CHANNEL AND WAITS UNTIL TIMEOUT
RESPONSE RECEIVED
S806
NODE CHOOSES NEW NAME/ ADDRESS
S808
END

Figure 8

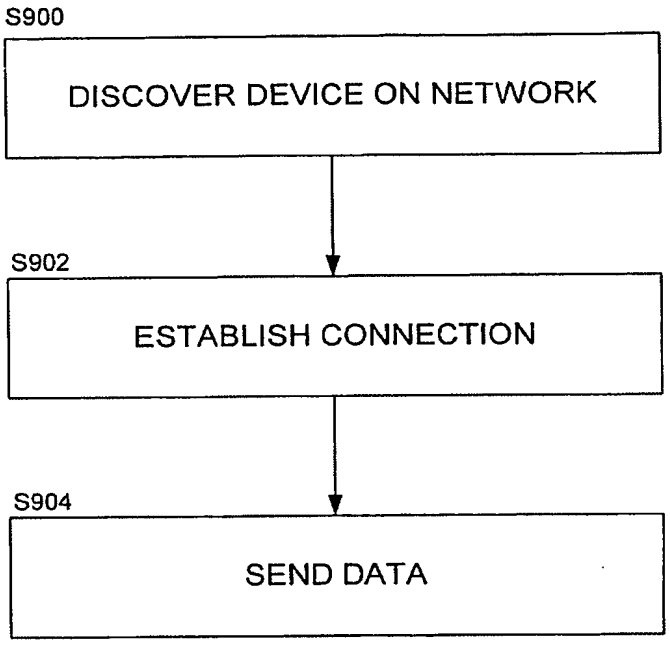

Figure 9

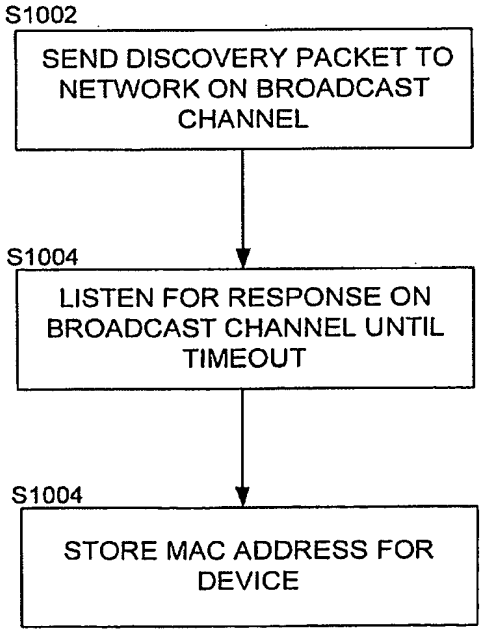

Figure 10

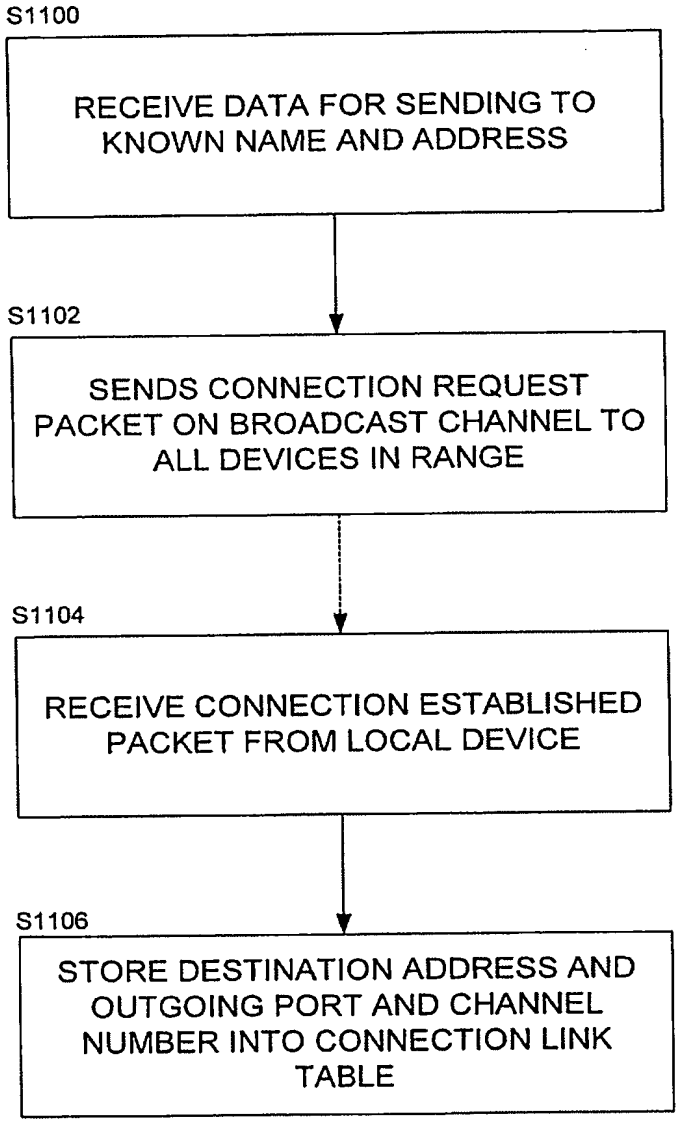
S1100
RECEIVE DATA FOR SENDING TO KNOWN NAME AND ADDRESS
S1102
SENDS CONNECTION REQUEST PACKET ON BROADCAST CHANNEL TO ALL DEVICES IN RANGE
S1104
RECEIVE CONNECTION ESTABLISHED PACKET FROM LOCAL DEVICE
S1106
STORE DESTINATION ADDRESS AND OUTGOING PORT AND CHANNEL NUMBER INTO CONNECTION LINK TABLE

Figure 11a

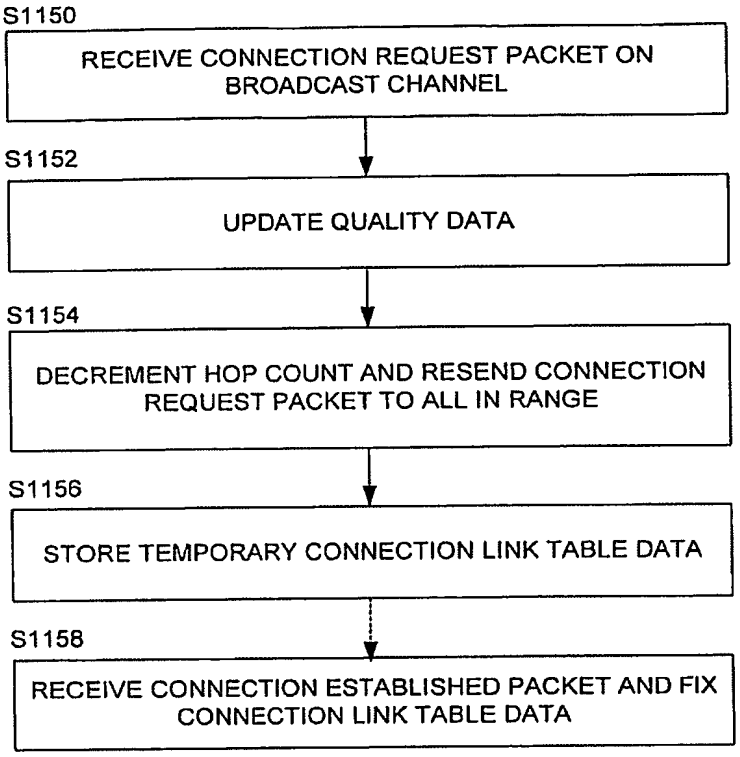

Figure 11b

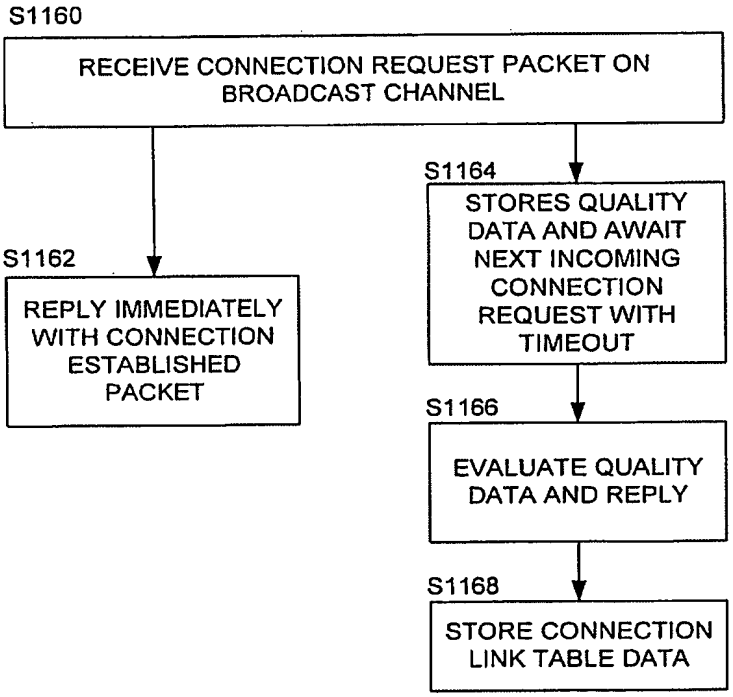

Figure 11c

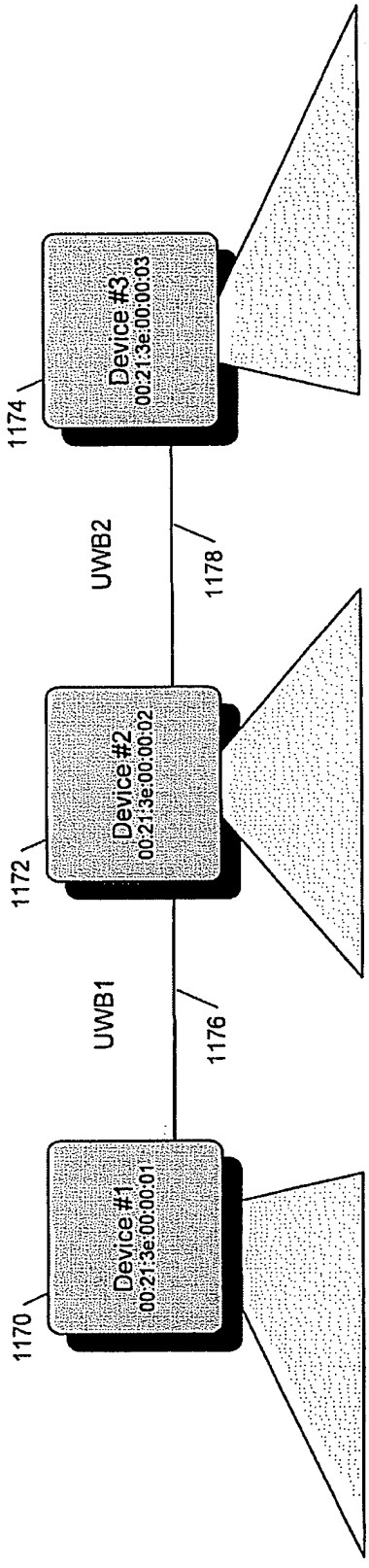
Device #3
00:21:3e:00:00:03
1174
UWB2
1178
Device #2
00:21:3e:00:00:02
1172
UWB1
1176
Device #1
00:21:3e:00:00:01
1170

Figure 11d

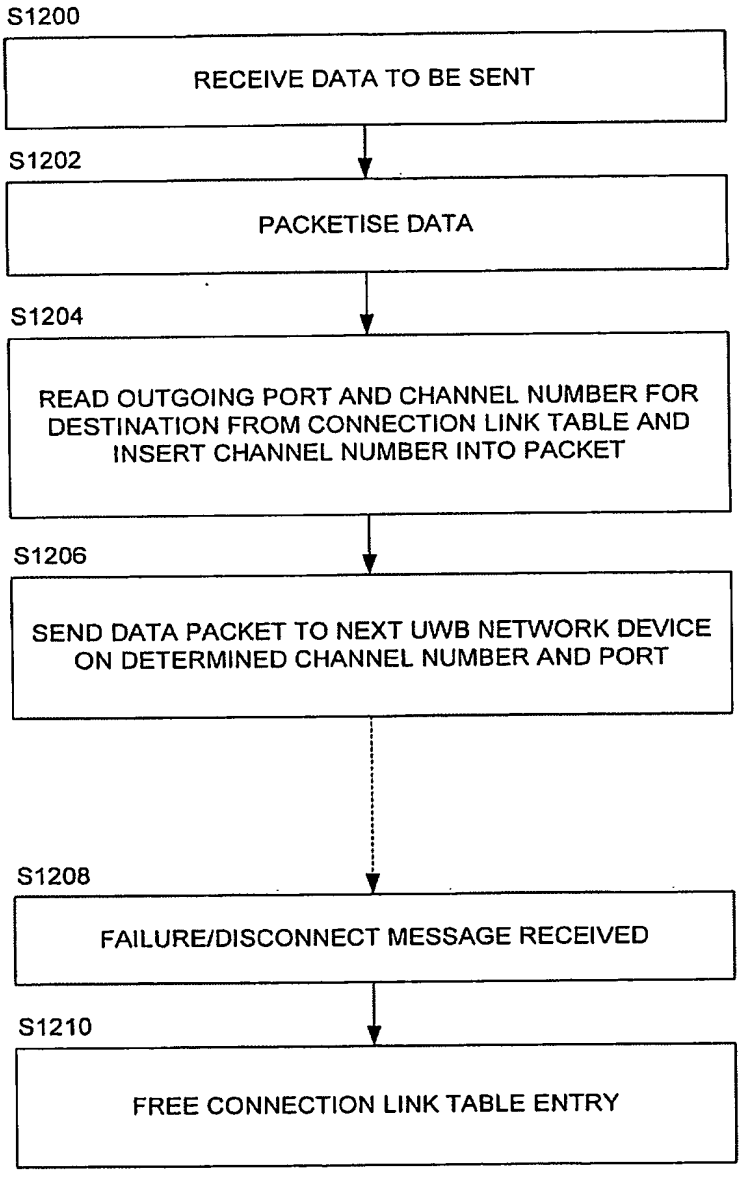
S1200
RECEIVE DATA TO BE SENT
S1202
PACKETISE DATA
S1204
READ OUTGOING PORT AND CHANNEL NUMBER FOR DESTINATION FROM CONNECTION LINK TABLE AND INSERT CHANNEL NUMBER INTO PACKET
S1206
SEND DATA PACKET TO NEXT UWB NETWORK DEVICE ON DETERMINED CHANNEL NUMBER AND PORT
S1208
FAILURE/DISCONNECT MESSAGE RECEIVED
S1210
FREE CONNECTION LINK TABLE ENTRY

Figure 12

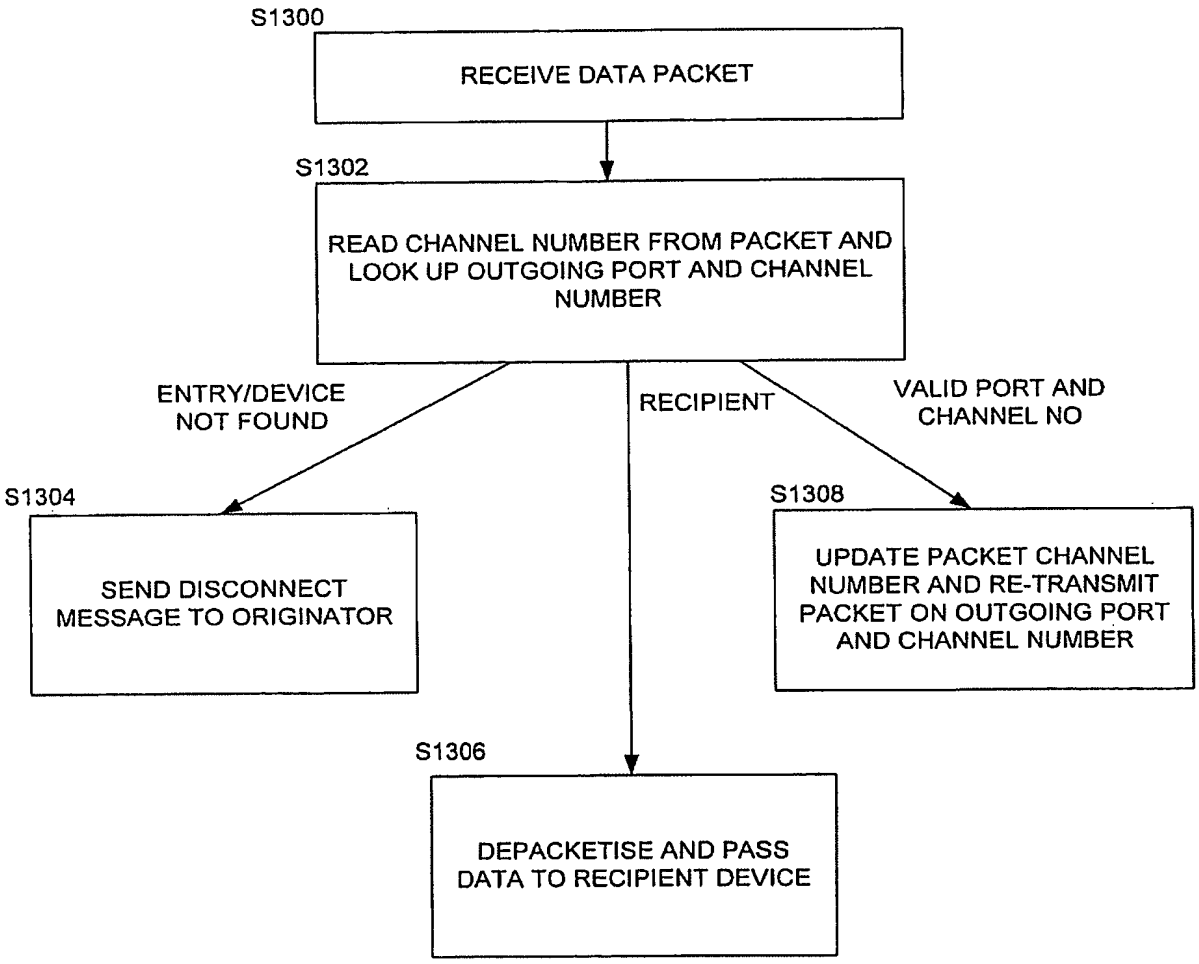
S1300
RECEIVE DATA PACKET
S1302
READ CHANNEL NUMBER FROM PACKET AND LOOK UP OUTGOING PORT AND CHANNEL NUMBER
ENTRY/DEVICE NOT FOUND
RECIPIENT
VALID PORT AND CHANNEL NO
S1304
SEND DISCONNECT MESSAGE TO ORIGINATOR
S1308
UPDATE PACKET CHANNEL NUMBER AND RE-TRANSMIT PACKET ON OUTGOING PORT AND CHANNEL NUMBER
S1306
DEPACKETISE AND PASS DATA TO RECIPIENT DEVICE

Figure 13